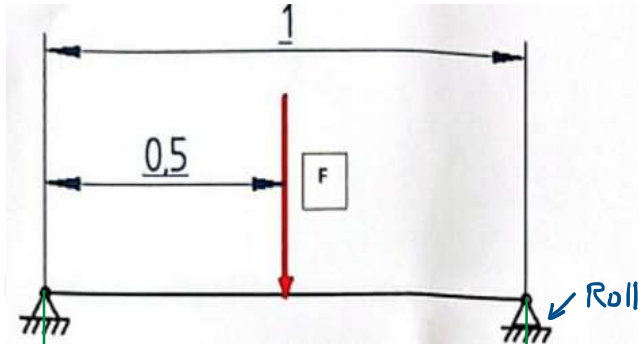
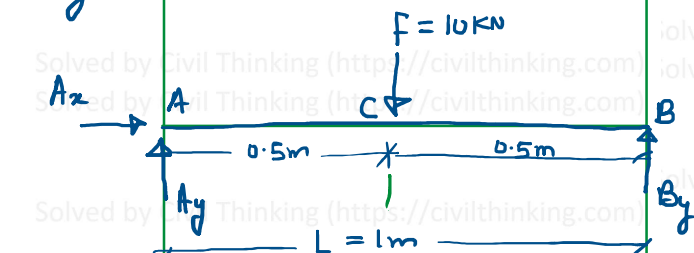


Shear Diagram and Moment Diagram of a simply supported beam carrying a point load at center.

Draw the Shear and Moment Diagram of the simply supported beam carrying a point force $F=10\text{kN}$ at the center. Take total length of beam, $L=1\text{m}$.



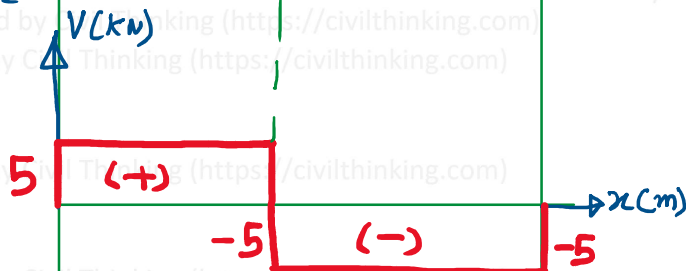
Free Body



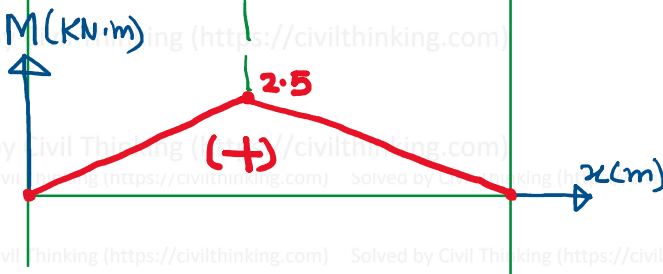
Symmetrie:

$$A_y = B_y = \frac{1}{2} F = \frac{10\text{kN}}{2} = 5\text{kN}$$

Shear Dia.



Moment Dia.



$$M_A = 0 = M_B \text{ [Hinge, Roller, } m=0]$$

$$M_C = M_{\max} \text{ [C is point of inflection]}$$

$$= A_y \times 0.5\text{m} = 5\text{kN} \times 0.5\text{m} = 2.5\text{kN}\cdot\text{m}$$

$$\Rightarrow M_C = M_{\max} = 2.5\text{kN}\cdot\text{m}$$

This problem was solved by Civil Thinking

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